

# Federal Energy Management Program

U.S. DEPARTMENT OF  
**ENERGY**

Energy Efficiency &  
Renewable Energy



## Federal Utility Partnership Working Group Meeting: Washington Update

**Dr. Timothy Unruh**

October 25-26, 2011  
Philadelphia, PA

- Federal Government Goals and Status
- FEMP Update
- UESC Program Overview and Goals
- Mark Your Calendar: Spring 2012 FUPWG

FEMP provides the services, tools, and expertise to Federal agencies to help them achieve their legislated and executive ordered energy, greenhouse gas, and water goals.

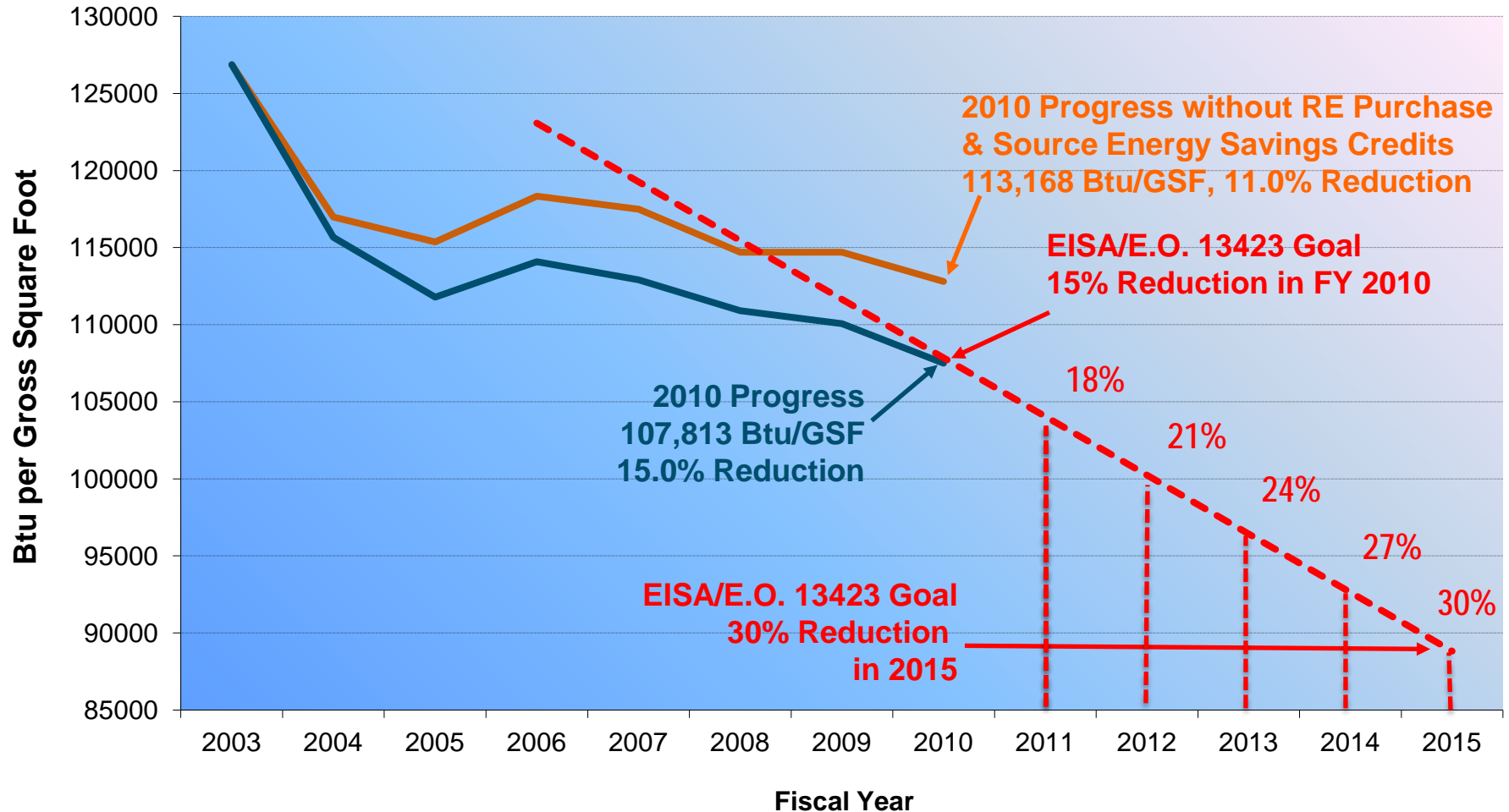
This is delivered through project financing services, technical assistance, and communications and training.

- Reduce Energy Intensity
  - **Goal:** reduce energy intensity (Btu/square foot) by 15% in FY 2010 compared to FY 2003; 30% reduction required in FY 2015.
  - **Status:** 15.0% reduction (only 10.7% without additional credits)
- Reduce Water Consumption Intensity
  - **Goal:** Reduce water consumption intensity (Gal/sf) by 6% relative to 2007 baseline; 16% by the end of FY 2015; 26% by FY 2020.
  - Government reduced water consumption intensity by 10.2% in FY 2010 compared to FY 2007.

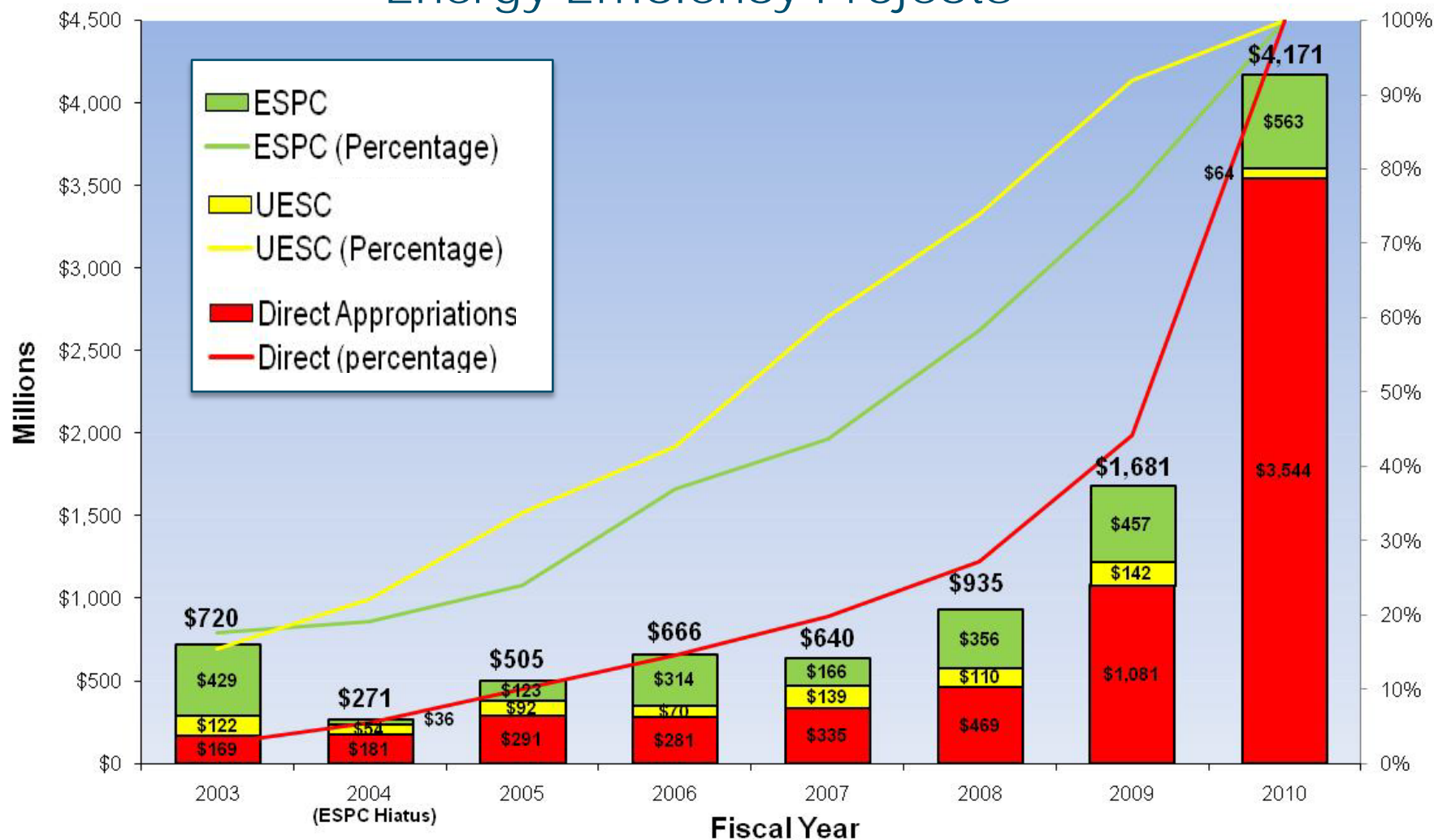
- Use Renewable *Electric* Energy
  - **Goal:** use renewable electric energy equivalent to a least 5% of total electricity use; at least half of which must come from sources developed after January 1, 1999. Must be at least 7.5% in FY 2013 and thereafter.
  - **Status:** 5.2% overall
- Reduce Greenhouse Gas Emissions
  - **Goal:** reduce government-wide GHG emissions by 28% for Scope 1&2 emissions and 13% for Scope 3 emissions by 2020 (from 2008 levels)
  - **Status:** 6.4% for Scope 1&2; Scope 3 pending



## Government Building Energy Intensity FY 2003 - FY 2010 (preliminary data)



## Federal Facilities: Investment in Energy Efficiency Projects



- Federal Government Goals and Status
- **FEMP Update**
- UESC Program Overview and Goals
- Mark Your Calendar: Spring 2012 FUPWG



## FEMP Training is Based on Mandatory Federal Drivers

- Energy Independence and Security Act
- Energy Policy Act
- Executive Order 13514
- Office of Management & Budget Scorecards
- Federal Personnel Training Act of 2010

## Federal Building Personnel Training Act of 2010 (FBPTA)

**Mission: To create a high-performance workforce with the core competencies required to employ industry best practices and standards to build, operate and maintain our Federal facilities in the most cost- and resource- effective manner possible.**

- Core competencies for Federal personnel performing building operations and maintenance, energy management, sustainability, water, safety, building performance measures
- Courses, certification, degree, license, or registration to demonstrate each core competency
- Means to demonstrate each core competency



NREL Pix 06594

## Business knowledge required for Federal Facilities Asset Management includes:

- Strategic planning
- Asset management
- Finance & accounting
- Contract monitoring
- Procurement
- Real estate
- Acquisition & leasing
- Business lexicon
- Risk management
- Contingency planning
- Ethics/law
- Marketing
- Human resources
- Professional development
- Organizational development

Source: NATIONAL ACADEMY OF SCIENCES  
<http://www.nap.edu/catalog/12049.html>



## Technical knowledge required for Federal Facilities Asset Management includes:

- Operations & maintenance
- Planning & design
- Project management
- Construction
- Cost estimating
- Space planning
- Energy management
- Sustainability
- Commissioning
- Security
- Life-cycle analysis
- Environmental health & safety
- Facilities management technology
- Code compliance



## GSA Competition: ESCOs and Deep Retrofits

- DOE IDIQ ESCO competition, in partnership with GSA's Office of Federal High-Performance Green Building, to achieve deep reductions in energy use paired with significant renewable energy production
- Objective is to approach EISA requirements for reductions in use of fossil fuel (65% by 2015, 80% by 2020, 100% by 2030)
- ECMs such as wall and roof insulation, air and vapor barriers, low-E windows are rarely implemented due to long paybacks, but if installed as part of a full renovation become more cost effective.
- One challenge is to develop a business/contracting model that integrates private funding with renovation related appropriations.

## ENABLE

**ENABLE is a financing program for energy efficiency and water projects at smaller facilities that have been traditionally underserved. It helps agencies meet Federal mandates at their facilities**

- Currently in the *concept phase*, *pilot projects are set for Spring 2012*
- Concept originated from the O&M Working Group, an interagency group coordinated by FEMP.
- Focuses on three key ECMs:
  - Lighting
  - Water
  - Controls (i.e. occupancy sensors, programmable thermostats)
- Primarily geared for smaller Federal facilities less than 200,000 sq. ft.
- A “gap filler” for facilities that don’t have the ability to complete energy efficiency projects at their facilities (they don’t have appropriations).



## New ESPC Process

The National Defense Authorization Act (NDAA) of 2011 eases the process for contractor selection, creating fertile ground for growing the ESPC program and increasing the number of Federal ESPC projects in the pipeline

- Incorporated into DOE contracts by March 25, 2011
- New outreach already begun

## Technology Deployment Program

FEMP recently established The Technology Deployment Program, to support the following objectives:

- Identifying advanced and underutilized technologies
- Understanding agencies' needs and barriers
- Working to accelerate deployment
- Sharing lessons learned across agencies; and incorporate institutional change

## GSA Green Proving Ground

- The Green Proving Ground program utilizes GSA's real estate portfolio to test and evaluate innovative and underutilized sustainable building technologies and practices. Findings will be used to support the development of GSA performance specifications and inform decision making within GSA, other federal agencies, and the real estate industry.
- The Program aims to drive innovation in environmental performance in federal buildings and help lead market transformation through deployment of new technologies.
- FEMP provides assistance to evaluate advanced technologies installed under the Recovery Act as a prelude to incorporating specifications into the GSA P-100 facilities design guide.

## Tri-Service Technology Panel

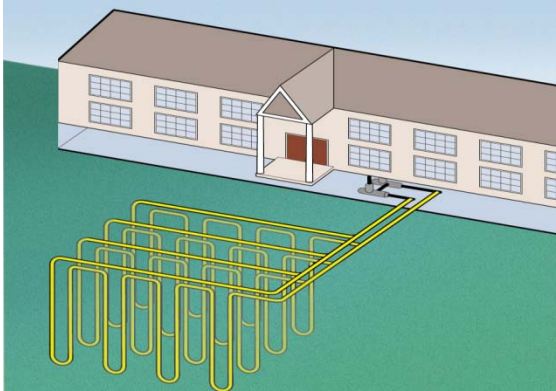
- Tri- Service Technology Panel serves to effectively accelerate the adoption of new technologies across the Department of Defense (DoD) into DoD built infrastructure assets. The purpose of the Tri-Service Technology Panel is to share and leverage service efforts across DoD in the areas of technology evaluation and implementation to accelerate transition to standards and criteria for facilities and infrastructure.
- FEMP collaborates with the U.S. Army Corps of Engineers to develop technology policy and participate on the Tri Service Technology Panel as an Advisory Member.

## Navy Technology Validation Program

- The Navy's Technology Validation Program demonstrates commercially-available emerging technologies that look promising for use at shore facilities, but are not yet in widespread use.
- FEMP shares information from this program with other agencies and the Navy program participates in FEMP's Technology Deployment Working Group.

# FEMP and GSA Collaboration - GSA GPG Ground

## Example: Ground Source Heat Pump at Mary E. Switzer Building in Washington, D.C.



Ground source heat pump schematic diagram

### GSA Recovery Act Project for Renovations

- Solar domestic hot water system;
- PV cells on the roof;
- Water conservation measures being installed throughout the building;
- Increased insulation in walls;
- Daylight dimming and control system;
- Parking lot converted to landscaped plaza.

### FEMP Support via ORNL

- GSHP with innovative thermacouple and multi-stack system;
- Measure and verify performance for a year;
- Identify key issues in design and construction;
- Publish performance data and lessons learned;
- Incorporate Institutional Change.

### Benefits:

- Widespread Replication of an EERE Technology;
- Agencies use GSHP whenever technically and economically feasible;
- Improved GSHP design, installation and O&M practices.



Mary Switzer Building, 330 C Street, Washington, DC

FY11

FY12

FY13

## Energy Efficient Product Procurement Efforts



- Federal Government Goals and Status
- FEMP Update
- UESC Program Overview and Goals
- Mark Your Calendar: Spring 2012 FUPWG



## Utility Program Activities

1. Eliminate barriers to project implementation
2. Provide direct technical assistance
3. Build capacity
4. Provide outreach and guidance documents
5. Emphasize project program and reporting
6. Provide training

## OMB Memo, August 2011

OMB Memorandum M-98-13 provides guidance for developing and entering into contracts

*“ESPCs and Utility Energy Services Contracts (UESCs) are an important tool to help meet identified energy management goals while deploying clean energy technology.*

*...agencies are encouraged to consider the responsible use of performance-based contracts that offer private-sector investment in energy and water conservation and renewable energy projects as part of their portfolio of tools to implement their Strategic Sustainability Performance Plans.*

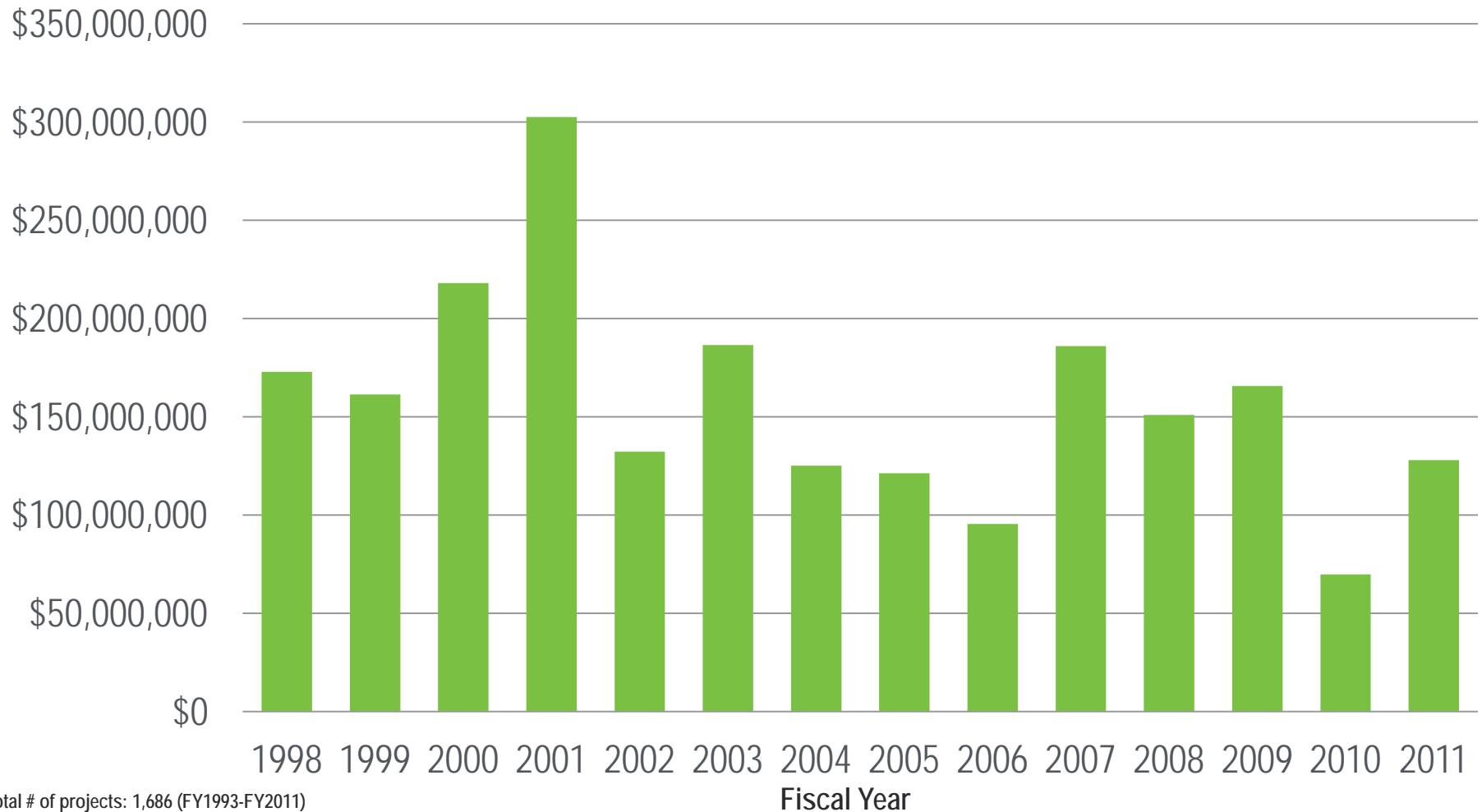
*...Agencies should consider consulting with FEMP at the planning stages of their projects to both take advantage of FEMP expertise and to reduce the burden of meeting the reporting requirements.”*

## Current UESC Baseline

- Average annual project investment: \$123 Million
- Utilities engaging in UESC: approximately 40
- UESC Utilities active in FUPWG: approximately 20



## UESC Project Investment (\$) by Year

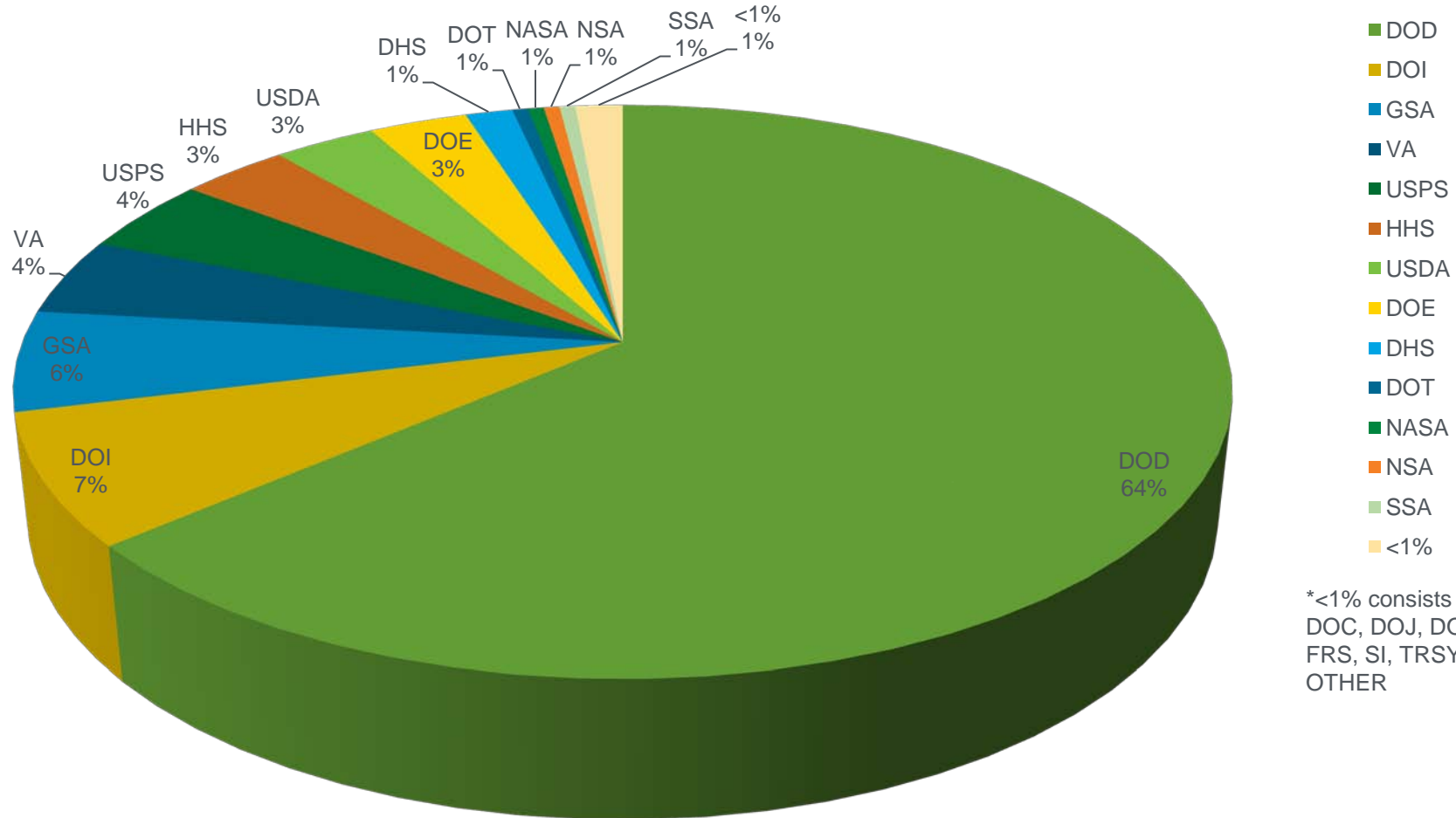


\*Total # of projects: 1,686 (FY1993-FY2011)

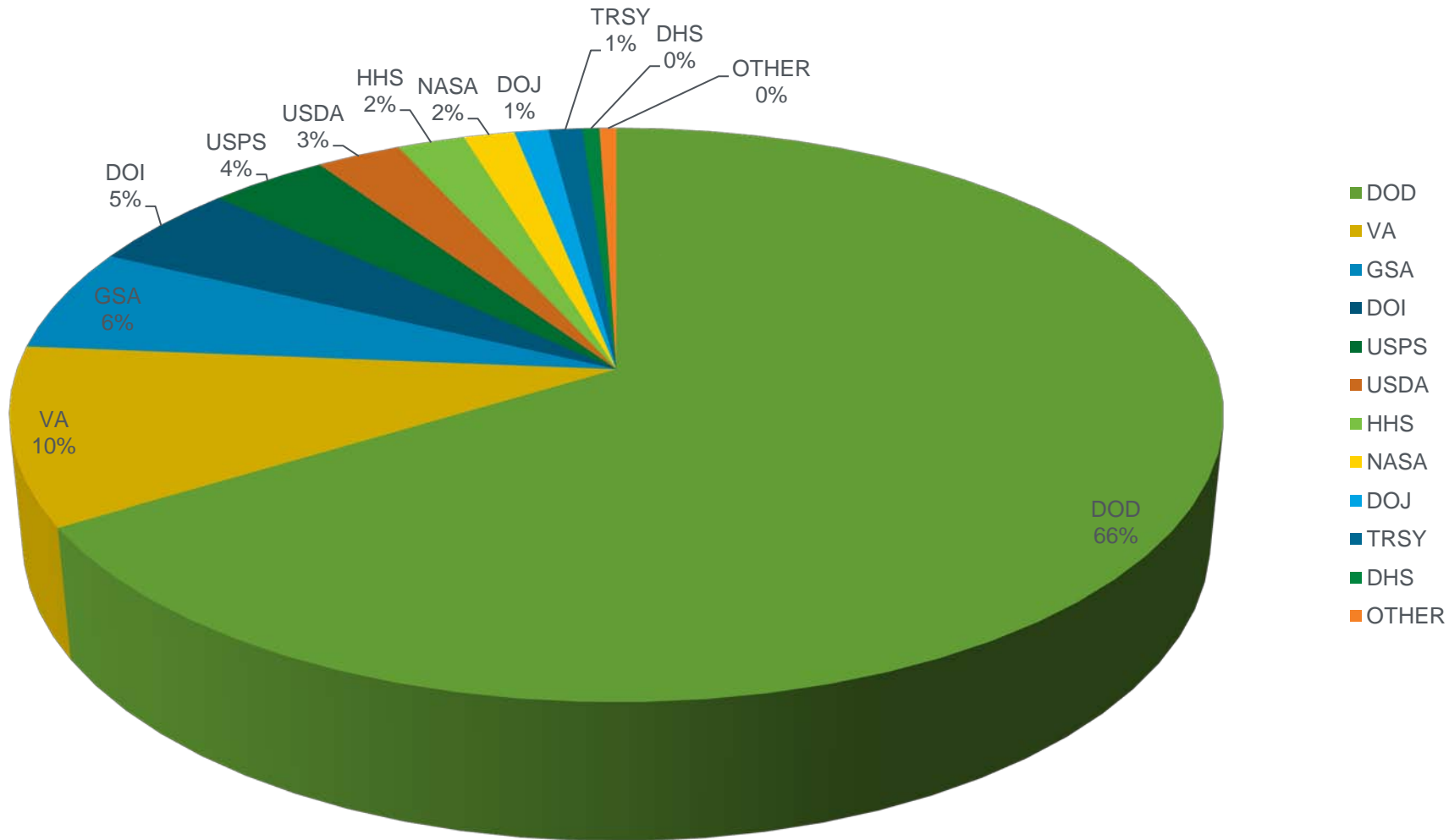
\*Total investment to date: \$2.4B (FY1993-FY2011)

\*UESC project data is reported on a voluntary basis and therefore may not provide a comprehensive view of all UESC projects

## UESC Projects by Agency (1991-Present)



## UESC Projects by Agency (FY2009-Present)





## Program Goals

- Establish a UESC project pipeline in FY2012 to actively track progress of projects in which FEMP is involved
- Achieve annual utility project investment of \$300 million by 2014
- Increase the number of utilities providing UESCs to their federal customers and/or participating in FUPWG by 33% by 2014
- Increase the number of federal sites implementing UESCs by 33% by 2014

## FEMP / Utility Partnership

### FEMP will:

- Identify, address and remove barriers
- Identify utilities that want to engage in strategic partnership meetings with their federal customers
- Develop specific policy, interagency coordination and legislative strategies to make the best use of UESC engagement.
- Develop more standardized forms and templates

### FEMP will count on utilities to:

- Use FEMP project funding team to increase awareness of UESCs
  - *Project funding teams promote ALL options in order to provide the best solution for each agency/project!*
  - *Utilities will co-host FUPWG and strategic partnership meetings*
- Take advantage of the Federal Financing Specialists
- Actively engage with FEMP to improve utility data reporting
  - *Being responsive to FEMP on data calls helps to promote the utility program!*

## UESC Data Collection Template

Agency	Facility	Building(s)	Utility	Contract Type	Contract Term	Task Order/Delivery Order	Award Date	Completion Date	Energy Conservation Measures Implemented In Project (See Key)	Project Description
Project's Capital Cost (\$)	Percent of Total Cost 3rd Party Financed	Rebate Amount (\$)	Rebate Source	Estimated Annual Cost Savings (\$)	Estimated Total Energy Savings	Estimated Annual kWh Saved	Estimated Annual KW Saved	Estimated Annual Natural Gas savings (please specify cubic feet, therms or MMBtu)	Estimated Annual water savings (in kgal)	

UESC data is reported on a voluntary basis.  
Please work with FEMP by submitting UESC project data to:  
Aly Dean, [adean@energetics.com](mailto:adean@energetics.com)  
202-406-4104

## FEMP Provided Training

### FEMP will:

- Develop a “cookbook” for contracting officers
  - *Includes sample documents and templates for executing Task Orders*
  - *Will have DoD and Civilian versions*
- Create advanced training opportunities for contracting officers focusing on cutting Task Orders under the GSA Area-Wide Contract

- Federal Government Goals and Status
- FEMP Update
- UESC Program Overview and Goals
- Mark Your Calendar: Spring 2012 FUPWG

## FUPWG Spring 2012

Hosted by:



AGL Resources<sup>TM</sup>

April 11-12, 2012

Jekyll Island Hotel Club Hotel  
Jekyll Island, GA

Dr. Tim Unruh  
Federal Energy Management Program  
202-586-5772

[Timothy.Unruh@ee.doe.gov](mailto:Timothy.Unruh@ee.doe.gov)

[www.FEMP.energy.gov](http://www.FEMP.energy.gov)